

SWBAT: compare electricity to pumped water

Jan 4-7:20 AM

# Welcome!!!

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SECA Physics  
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\* Pick up:

- slip of paper (for later)
- get your concept sheet from the slot

Opening Question:

CURRENT

What else "flows" besides electric charge?

WATER

AIR

LAVA

Centering

Sep 7-7:04 AM

Pressure

b. PUMP

: 6 rows total

An electron is  $1.6 \times 10^{-19} \text{ C} = .000000000000000000016 \text{ C}$

MEASURE

	Meaning	Symbol	Units	Analogy
CHARGE	PROPERTY OF PROTONS & ELECTRONS THAT CAUSES ATTRACTION & REPULSION	$q$	COULOMBS $C$	WATER
VOLTAGE =ELECTRIC POTENTIAL	POTENTIAL BASED ON POSITION IN AN ELECTRIC FIELD "PUSH"	$V$	VOLTS $V$ $V = \frac{J}{C}$	- PUMP - UP HIGH - PRESSURE
CURRENT	THE FLOW OF ELECTRIC CHARGE $= \frac{\text{CHARGE}}{\text{TIME}}$	$I$ $I = \frac{q}{t}$	AMPERE $A$ $1A = \frac{1C}{s}$	FLOW OF WATER

$\frac{q}{I \cdot t}$

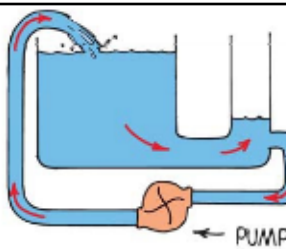
Feb 23-7:34 AM

CURRENT

CHARGE

(FLOW) - WATER

MOVES WATER - PUMP



b. Water continues to flow because a difference in pressure is maintained with the pump.

LIKE CURRENT?  
LIKE VOLTAGE?  
WHY?

Water analogy -- using "Numbered Heads Together".

- In groups, count off
- As a group, discuss the questions and have a "group" answer
- Any person in the group should be able to tell the class the group's answer
- I will pick a number, and that person will be called on to explain what the group decided.

What in the water example is like current? What is like voltage?  
WHY do you say that???

Feb 23-7:34 AM

## Worksheet 34-1

- alone or with another person
- use your yellow concept sheet
- some questions will be on Daily 3

Feb 27-7:30 AM

### Electrons in a wire demo

How many protons in the wire?

How many electrons in the wire?

Is the wire positive, negative, or neutral? (+, -, or 0)

How many electrons are in the wire while / after current flows?

What charge is the wire now? (+, -, or 0)

T/F: The electron that got pushed in is the one that came out

T/F: Something came out of the wire as soon as something went in  
(The flow was fast)

T/F: The electrons inside moved super fast, raced from one end of the tube to the other.

Feb 28-7:46 AM

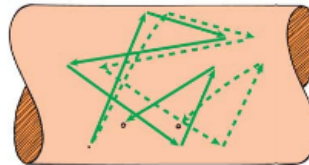
"Current" misconceptions...TRUTHMISCONCEPTION

1) Wires are empty of electrons and filled up when there's a current

2) Electrons flow super fast

3) Wires are neutral when a current is flowing

**FIGURE 30-11b**  
The solid lines depict a random path of an electron bouncing off atoms in a conductor. The dashed lines show an exaggerated view of how this path changes when an electric field is applied. The electron drifts toward the right with an average speed less than a snail's pace.



Feb 23-7:43 AM

Daily 3 Questions

- \* Every day except test/project days
- \* 3 Questions on the topics of the day
- \* Main source of daily points
- \* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your **NAME!!!**

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. What are the (SI) **units** for voltage?

V VOLTS

2. What in the water analogy is like current?

MOVEMENT  
FLOW

3. When a charge of 15 C flows by a place each second, the current is 15 A.

Feb 18-6:59 AM

Feb 24-10:21 AM